

may provide the user interface to the remote CE device and/or interact with an application operating on the CE device to populate a user interface and/or receive commands through the user's interaction with the user interface.

[0098] The remote CE devices **512-513** can be substantially any relevant CE device capable of communicating over the distributed network with one or more of the CE device **130-134** and/or the service **524**. For example, the remote CE device can be a smart phone, laptop, tablet, computer, smart television, home theater receiver, set-top-box, game console or other such device. Any of these devices can act as a controller. Similarly, the remote server and/or service **524** can be implemented by substantially any relevant service, such as but not limited to a cellular network provider, a CE device manufacturer, a local area network router manufacturer, a home personal computer of a user, or other such service.

[0099] FIG. 6 depicts a simplified flow diagram of an exemplary process **610** of discovering one or more antenna systems **116**, in accordance with some embodiments. Process **610** may be performed by processing logic that may comprise hardware (e.g., decision-making logic, dedicated logic, programmable logic, ASIC, and microcode), software (such as software run on a general-purpose computer system or a dedicated machine), or a combination of both. In one example embodiment, the processing logic refers to a group owner, controller **318**, a processor of CE device, a computing device, or a server. Notably, below recited steps of process **610** may be implemented in an order different than described and shown in the figure. Moreover, process **610** may have additional steps not shown herein, but which can be evident for those skilled in the art from the present disclosure. Process **610** may also have fewer steps than outlined below and shown in FIG. 6.

[0100] In step **612**, the process is started. For example, a CE device (e.g., CE device **130**) and/or an antenna system **116** is powered on, a user activates the antenna system discovery process, a predefined amount of time expires, or the like. In step **614**, the CE device **130** determines a number of antenna systems **116** of the CE device and/or capable of communicating with one or more CE devices. In some embodiments, this information is known and stored locally, while in other embodiments, the CE device evaluates system resources to detect antenna systems. In still other embodiments, antenna systems within the CE device may issue a notification to a controller of the CE device and/or the another antenna system.

[0101] In step **616**, each antenna system **116** of a CE device is activated to discover one or more other antenna systems **116** with which the antenna system is in range and/or with which the antenna system may potentially couple. The discovery process may include sending one or more predefined communications from one or more of the antennas of the antenna systems, following one or more predefined protocol discovery processes (e.g. a PHY discovery process, magnetic induction field discovery process, etc.), and/or other such discovery processes or combinations of such discovery processes.

[0102] For example, in some implementations, one or more communications are initiated through power modulation between power transfer antennas of two antenna systems, a predefined communication protocol can be used from one or more communications antennas, or other such communications may be implemented and/or a combination

of such communications may be implemented. The communications can be configured, for example, to acquire wireless coupling parameters corresponding to the one or more communications antennas of one or both antenna systems. The discovery communication may be an initial communication, and once coupling is established, subsequent communications with one or more other antennas may be employed using one or more protocols determined through the initial communication (e.g., done through the power transfer antenna). Further, the discovery process or processes may limit discovery to those antenna systems that are external to the CE device.

[0103] In step **620**, it is determined whether one or more antenna systems are detected. In those instances where there are no antenna systems detected and/or no additional antenna systems yet to be identified, the process terminates at step **622**. For example, the process **610** may terminate when the CE device **130** is not positioned near another CE device that is capable of communicating with antenna system **116** of the CE device.

[0104] When a second antenna system is detected, the process advances to step **624**, where coupling parameters and/or other such information are determined for the detected second antenna system. Again, the coupling and/or coupling parameters and/or other information can include determining the communication and/or power transfer capabilities of the second antenna system, services and/or functionality of the corresponding separate CE device, and/or other such coupling configurations and/or information. For example, some embodiments perform some or all of a link layer discovery protocol process, UPnP discovery, or the like of at least the CE device.

[0105] Some embodiments include step **626** where it is determined whether first CE device **130**, an antenna system **116** of the first CE device, or another CE device of the near field wireless network previously coupled with the second CE device and/or the antenna system of the CE device. In those instances where the CE device and/or antenna system is recognized, the process may advance to step **628** to re-establish the same or a similar configuration that was previously established with the second CE device. This can improve efficiency and/or utilize optimum configurations that were previously determined. For example, a default configuration may be established when two antenna systems are wirelessly coupled based on a previous evaluation of the available antenna systems and/or antennas of two or more antenna systems. As such, the previously established default configuration can be implemented in step **628** between two antenna systems. Again, this default configuration may be based on a determined optimum coupling. In some implementations, the previous configuration and/or default configuration may be stored in one or more of the antenna systems, a group controller, a remote service **524**, a remote CE device **512**, or the like. For example, a matrix may be stored in an antenna system controller of each antenna system in response to receiving configuration instructions.

[0106] Similarly, in some embodiments, previous parameters and/or settings are remembered for a configuration and when the orientation and/or configuration of antenna systems changes to a previous orientation and/or configuration, then the group of antenna systems and/or CE devices can shift to the remembered settings and/or default to using the last settings that were in use when the antenna systems were in the same configuration. Additionally or alternatively,